

and nudges among themselves, watch the professor banter with Hans. Then, when the masquerade is revealed, "Donnerwetter" changes to "Entschuldigen Sie," and all is well, although it sometimes happens that nothing but the payment of the regular three marks' fine will secure the peaceful and undisputed progress of the expedition. An unfailing feature is the halt for lunch at some convenient "Gasthaus," where, over black bread and sausage and mugs of foaming beer, many an interesting botanical question as well as jolly joke or story is discussed. If a part of the excursion is by rail, tickets are taken third class, and even these are obtained, in such cases, at reduced rates.

At play or at work I have found the German professors and students wholly interested and in earnest. Perhaps thus their work obtains a character of reliability and thoroughness; perhaps thus they are able to derive such satisfaction from the most minute and tedious investigations and inspire in new students such enthusiasm and devotion. Certainly, working or playing, I was glad to count my connection with the botanical people at Göttingen among the pleasantest of my university experiences.

Amherst, Mass.

Notes on Andropogon.

F. LAMSON SCRIBNER.

Prof. E. Hackel, in his contribution (Gramineæ) to Engler's great work on the families of plants (Die Pflanzenfamilien), has extended the genus *Andropogon* so as to include a number of grasses which have been for some time regarded as belonging to distinct genera. The genus is divided into 12 subgenera, among which are *Sorghum*, *Chrysopogon* and *Heteropogon*. Based on this classification, Prof. Hackel recognizes 25 species as belonging to the United States. The following is the list in full, kindly furnished me by Prof.

Hackel in advance of his "Monographia Andropogonearum," which is now in press, and will be published next year:

- | | |
|--|--|
| <p>1. <i>A. semiberbis</i> Kunth.
 2. <i>A. hirtiflorus</i> Kunth.
 subvar. <i>oligostachyus</i> Hack.
 subvar. <i>feensis</i> Hack.
 3. <i>A. cirratus</i> Hack.
 4. <i>A. tener</i> Kunth.
 5. <i>A. scoparius</i> Michx.
 subsp. <i>genuinus</i> Hack.
 (There are no other varieties distinguished, but some forms are named.)
 subsp. <i>maritimus</i> Hack.
 var. <i>a. maritimus</i> (S. States).
 var. <i>b. divergens</i> (Texas).
 6. <i>A. gracilis</i> Spr.
 7. <i>A. macrourus</i> Michx.
 <i>a. genuinus</i>.
 <i>b. abbreviatus</i> Hack.
 <i>c. hirsutior</i> Hack. (<i>vaginis tuberculato-villosis</i>, Mobile, leg. C. Mohr).
 <i>d. corymbosus</i> Chapm.
 <i>e. glaucopsis</i> Chapm.
 8. <i>A. Virginicus</i> L.
 <i>a. genuinus</i> Hack.
 with subvar. <i>stenophyllus</i> Hack.
 <i>b. glaucus</i> Hack.
 <i>c. dealbatus</i> Hack.
 <i>d. tetrastachyus</i> Hack.
 9. <i>A. Leibmanni</i> Hack.
 var. <i>b. Mohrii</i> Hack.
 10. <i>A. longiberbis</i> Hack.
 11. <i>A. Elliottii</i> Chapm.! (non <i>A. vaginatus</i> Ell., sed <i>A. clandestinus</i> Hale.
 12. <i>A. brachystachyus</i> Chapm.
 13. <i>A. arctatus</i> Chapm.</p> | <p>14. <i>A. argyreus</i> Schult.
 15. <i>A. Cabanisii</i> Hack.
 16. <i>A. provincialis</i> Lam.
 17. <i>A. Hallii</i> Hack. (cum var. <i>flaveolus</i>, <i>incanescens</i>, <i>muticus</i>).
 18. <i>A. Wrightii</i> Hack. (Wright, New Mex. coll: no. 2104).
 19. <i>A. saccharoides</i> S. W.
 var. <i>Torreyanus</i> Hack
 var. <i>submuticus</i> (Texas, leg. Nealley).
 var. <i>perforatus</i> (<i>A. perforatus</i> Trin. Texas, Berlandier, no. 641, Lindheimer no. 1161).
 20. <i>A. Sorghum</i> Brot.
 subsp. <i>halapensis</i> Hack. (<i>Sorghum</i> sp. Pers.).
 subsp. <i>sativus</i> (cultivated sorghum, the varieties of which are very numerous).
 21. <i>A. nutans</i> L. (with vars).
 22. <i>A. unilateralis</i> Hack. (<i>Sorghum secundum</i> Chapm. This can not be named <i>A. secundus</i> in consequence of <i>A. secundus</i> Willd.)
 23. <i>A. pauciflorus</i> Hack. (<i>Sorghum pauciflorum</i> Chapm., but it is not of the <i>Sorghum</i> section, but belongs to <i>Chrysopogon</i>).
 24. <i>A. contortus</i> L. (<i>Heteropogon</i> sp. R. & S.).
 25. <i>A. melanocarpus</i> Ell.</p> |
|--|--|

The changes in Patterson's Catalogue, following from this arrangement are as follows:

Andropogon dissitiflorus Mx. = *A. Virginicus* L.: *A. Mohrii* Hack = *A. Leibmanni*, var. *b.*: *A. saccharoides* S. W., var. *inermis* Vasey = var. *submuticus* Hack.: the var. *maritimus* under *A. scoparius* is raised to a subspecies: *Chrysopogon nutans* = *A. nutans* L.: *C. secundum* = *A. unilateralis* Hack.: *C. Wrightii* = *A. pauciflorus* Hack.: *Heteropogon acuminatus* = *A. melanocarpus* Ell.: *H. contortus* = *A. contortus* L.: *Sorghum halapense* = *A. Sorghum* Brot., var. *halapensis* Hack.

There are some new varieties; other varieties reduced to forms; and others wholly omitted.

In the letter communicating the above list of Andropogons (dated June 10), Professor Hackel says: "As to other Andropogoneæ, there are some changes in nomenclature, viz.: Imperata brevifolia Vasey is I. Hookeri Rupr.: 'Elionurus candidus' from Texas and Arizona is not E. candidus Hackel in Flor. Brazil., but a new species named E. barbiculmis; 'Elionurus Nuttallianus' of Vasey, Grasses of the U. S., is the type of E. tripsacoides HBK.: Rottbœllia corrugata Baldw. is recognized as a species, with the variety areolata: R. tessellata Steud. is a form of R. corrugata: R. rugosa has a var. Chapmani (Curtiss, no. 3622)."

Washington, D. C.

Notes on the inflorescence of *Callitriche*.¹

JOSEPH SCHRENK.

While examining the flowers of *Callitriche heterophylla* Pursh, I noticed some peculiarities about the so-called bracts of the inflorescence which seem to have escaped notice thus far.

For the sake of completeness I will briefly state that the species examined has dense floating tufts of broadly spatulate opposite leaves, each bearing in its axil one, sometimes two pistils, and one stamen² between a pair of the bracts mentioned. The latter are of a semilunar shape, attached by one of the attenuated ends to the stem, the concave sides turned toward the pistil.

Of such bracts, including those met with in other families, Hydrilleæ, Naiadeæ, Potameæ, etc., H. Schenck, in his elaborate paper on the "Comparative anatomy of submersed plants,"³ says: "These structures are no stipules, as Caspary calls them, but true trichomes. They are found in the axils of the leaves in the form of tender, transparent, roundish or elongated, small scales, consisting of one or two layers of cells. They originate early at the apex of the stem, develop more rapidly, and perish sooner than the neighboring leaves. Probably they all produce a secretion which en-

¹Read before Section F, A. A. A. S., August 16, 1888.

²In the numerous specimens examined I noticed that when there were two pistils in one axil the stamen was invariably wanting.

³Bibl. bot., Vol. I, 1837, p. 10.—The "Monograph on the genus *Callitriche*," by Fr. Hegelmaier (1864) I was unable to consult, and had to be satisfied with the statements of Schenck (l. c.) and de Bary (Comp. Anat.) referring to it.